2. The Smartpack2 Basic Industrial Controller

The *Smartpack2 Basic Industrial* controllers are reliable and versatile modules used as **slave controllers** in the distributed control system of *Smartpack2*-based power applications. They can also operate in **stand-alone mode**, maintaining the system in normal operation, thus providing redundancy and improving system reliability.

The versatile *Smartpack2 Basic Industrial* controllers can be used in typical industrial and telecom power supply applications, with system voltage ranging from **12VDC to 430VDC**, and using **negative-, positive- and floating DC distribution** units. Read also chapter *"3. Typical Industrial Applications" on page 21*.

They are developed for monitoring and controlling the power system's internal functionality, and provide two isolated distributed power sources for CAN nodes connected to **two separated CAN bus systems with floating voltage references**. While the two CAN bus systems are used for internal system communication, the SP2BI controllers may also communicate with external systems via **isolated RS232** (COM1) and **RS485** (COM2) serial ports.

For increased reliability, the controllers may be **fed from two external supplies**, as the two internal switch mode power supplies feed one CAN interface each, and both feed the controller's measuring circuitry. The controller's core functionality and one CAN interface will still function normally, even after the loss of one of the external power inputs.

The *Smartpack2 Basic Industrial* controllers implement — among many other features — isolated and floating measuring circuitry with **selectable measuring reference point**, with voltage sense inputs ranging from **0 to 430VDC**.

The **3 configurable multipurpose inputs** operate in the range of max. – 10 to +10VDC, and are intended for **great accurate measurements**, e.g. for temperature sensing using an external temperature NTC probe. Also, these inputs are suitable for monitoring other sensors (of pressure, humidity, etc.) that output 4mA to 20mA. An external 470 ohms resistor is then to be connected to the input's terminals on the controller, in parallel with the sensor's cables.

Key Features

A wide range of features are implemented in the *Smartpack2 Basic Industrial* controllers:

- 3 LED lamps for local visual alarming (Major, Minor, Power ON)
- 2 separated CAN bus systems with distributed power for connected CAN nodes
- 2 serial communication ports, RS232C and RS485, for external equipment
- 5 sense inputs for internal monitoring: 3 voltage sense inputs and 2 current sense inputs
- 2 configurable inputs for load and battery fuse monitoring
- 1 internal isolation sense input for Earth fault detection
- 3 configurable multipurpose inputs (temperature, digital inputs or analog

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- ◊ 3 LVD control outputs, configurable for latching and non-latching contactors
- ◊ 3 user programmable NC-C-NO relay outputs for remote control
- ◊ Up to 10 *Smartpack2 Basic Industrial* controllers may be connected each CAN bus
- ◊ CAN bus addressing via DIP switches
- ◊ Compatible with telecom and industrial system voltages up to 430VDC
- ◊ Suitable for power systems with negative-, positive- and floating DC distribution
- ◊ Controller's electronics implemented in 7 different isolated sections
- ◊ Configuration via the master controller's front keys and via the controller's web-based user interface (CWUI) on a standard web browser and via the *PowerSuite* PC application
- ◊ Firmware upgrade via the CAN bus (refer to *page 20*)

Read also chapter *"Technical Specifications" on page 19*, for more details.

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Technical Specifications

The technical specifications for the *Smartpack2 Basic Industrial* controller described in this chapter may have being updated or improved.

Refer to *Eltek*'s data sheet about this controller, which you can download from the *Eltek* web site, to read the controller's latest and freshest technical specifications.

Specifications	*Smartpack2* Basic Industrial controller
Input Voltage	10 - 75 VDC, Shutdown: < 10 VDC, 2 separated power inputs
Storage Temperature Operating Temperature	-40 to +85˚C (-40 to 185˚F) -20 to +70˚C (-4 to 158˚F)
Current Consumption	Max 1.6A
Electric Isolation	7 different isolated sections
Customer Connections • Configurable Inputs • Relay Outputs • Serial Communication	 3x, "digital", temperature / voltage /current measurements. - NO/NC, Pull Up/Dn, Diode Matrix: -10V→+10V (2mV full range) - Current measurements: 4-20mA (ext. sense resistor 100-500Ω) - Temperature measurements: NTC probe 3x, NO-C-NO, 0-220V, 30W (max. 1A), configurable RS232C port and RS485 port
System Connections • Voltage Sense Inputs • Current Sense Inputs • Battery Fuse Sense Inputs • Load Fuse Sense Inputs • LVD Contactor Outputs • CAN interface • Earth Fault Detection	 3x, Max. 420VDC, Symmetry& battery monitoring 2x, for 20mV to 60mV current shunts 1x, NO/NC, Pull Up/Dn, Diode Matrix: -10V→+10V (2mV full range) 1x, NO/NC, Pull Up/Dn, Diode Matrix: -10V→+10V (2mV full range) 3x, 10-420V, 1A, Configurable as latching or non-latching LVD Supply input: 10-420V, 1A 2 x, CAN bus systems (separated and isolated) 1x, internal Isolation input
Power System compatibility	Industrial & Telecom, Positive, negative and floating DC distributions
Frontal indicators	3x, LED lamps (green, amber, red)
Max number of controller nodes	10 on a single CAN-bus, in addition to *Smartpack2 Master* controller
Controller configuration	Front keys in the *Smartpack2 Master* controller, via CWUI in an standard web browser (Controller's Web-based User Interface) and via *PowerSuite* application
Firmware upgrade	Via the CAN bus, using SD card in the *Smartpack2 Master* controller or from PC
Dimensions (WxHxD)	146.0 x 146.0 x 45.6 mm (5.7 x 5.7 x 1.8")

Specifications are subject to change without notice

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Applicable	Standards
Electrical safety	IEC 60950-1 UL 60950-1
EMC	IEC 61000-6-1 IEC 61000-6-2 IEC 61000-6-3 /A1 IEC 61000-6-4 IEC 61000-6-5 FCC Part 15B Subpart 109
Environment	ETSI EN 300 019-2-1 V2.1.2 ETSI EN 300 019-1-3 v2.3.2 2002/95/EC (RoHS) & 2002/96/EC (WEEE)
Marine	DNV – 05 – D202

Part No.:	Description
242100.601	*Smartpack2 Basic Industrial Controller*
242100.501	*Smartpack2* Basic Controller (Telecom)
242100.500	*Smartpack2 Master* Controller
242100.502	I/O Monitor2 CAN node (type 2 G2)